

PARTITION 2. 2.

USSR /Chemistry - Fatty Acids, Absorption.
Chemistry - Dehydration.

"Absorptive Layer in Non-Newton Systems: III, A.I., and Absorption in Air Boundary," S. I. Starobinskiy, A.T. Pavlov, L. D. Bogdanov, K. A. Lebedev, U. Inst Chem, Minch, U.S.S.R.

"Zin ar Fie Khin Li" No 10

Measures surface tension of solutions of propylene glycol, isobutyl alcohol, and oleic acid in diethylamide in the concentration range 0.01-0.1M. Determined surface tension of solutions studied, and calculated the surface activity of the compounds. Calculated adsorption of aliphatic acids on a silica-alumina adsorbent in the range 0.14g--0.4g/g of adsorbent equation. Calculated constants of adsorption of aliphatic acids on silica-alumina adsorbent.

PA 21/49T6

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Transformations of paint films II. Interaction between the pigment and the oil. A. V. Pambukov and E. G. Ivancheva. *Zashchita Khim. 77* Applied Chem. 21, 134-12 (1948). *ibid.* 42, 3193. The extent of complex formation between the more pigment and the linoleic acid of the linseed oil was determined by combustion of the supernatant oil after sedimentation or centrifugation of the unreacted suspended pigment, or particularly with dried thin films of paint, by solubility in CHCl_3 , evaporation of the solvent and combustion of the residue, it being held evident that only the metal linoleates, not the more pigments, are extracted by CHCl_3 . Absence of a significant fraction in the process of the extraction with hot CHCl_3 was ascertained by 1 hr. boiling of PbO or ZnO with linseed oil in CHCl_3 , in which only a small amount of metal oxide, with respect to the wt. of the oil, was found in the extract. Expts. were made with dried paint preps. by stirring the pigment with the oil, grinding with a small amount of the oil and subsequent film, with the balance of the oil, spreading of a thin layer of the paste on glass and drying at 5-10°, and with different oils, ordinary linseed oil, linoleic acid obtained by saponification of the oil, and completely saponified linseed oil, and no. 115. With 10% and 5% 3 g. pigment per 10 g. oil, significant amounts of linoleate were formed only with PbO (e.g. 6% metal oxide per 100 g. oil, after 35 days' standing with occasional stirring, 9% after 82 days' standing, with ZnO , none with Cr_2O_3 , Fe_2O_3 , and TiO_2).

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Under conditions a and b, PbO , Pb_2O_3 , and ZnO react with the oil rapidly, Fe_2O_3 reacts weakly, Cr_2O_3 and TiO_2 do not react at all. Under conditions c and d, all the pigments investigated have reacted, to varying degrees, with the oil. PbO almost quantitatively in 48 hrs., ZnO somewhat slower (quantitatively after 20 days). Cr_2O_3 and TiO_2 are bound in amounts corresponding to about half the amount calculated for the linoleate, and this amount does not increase any further on 15 days' standing at 5-10°. It is not, however, claimed that this constitutes a proof of complex formation; it may indicate only the presence of very finely divided, very slowly settling pigment in the sol. part of the film, especially as the CHCl_3 solns. of the Cr_2O_3 films, after long centrifugation, are colorless in transmitted, greenish in reflected, light, whereas directly prepd. Cr linoleate, in CHCl_3 soln., is violet. In case c, PbO and ZnO were found bound to the extent of 90% of the amount calculated for the salt, after 48 hrs., under the same conditions, no Cr , Ti , or Fe was detected in the CHCl_3 extract, even though a CHCl_3 extract of a fresh Fe_2O_3 film showed the same red-brown color as a soln. of synthesized Fe linoleate. Possibly, the absence of metal in the extract of an aged film is due not to absence of chem. interaction, but to insolubilization of the product through aging. Interaction between the oil and the pigment is thus shown to take place quite intensively, and much more intensively in the film than in the bulk. Aging of the paint film, and the gradual deterioration of its quality, are thus linked directly, at least in part, to that interaction. N. Thon

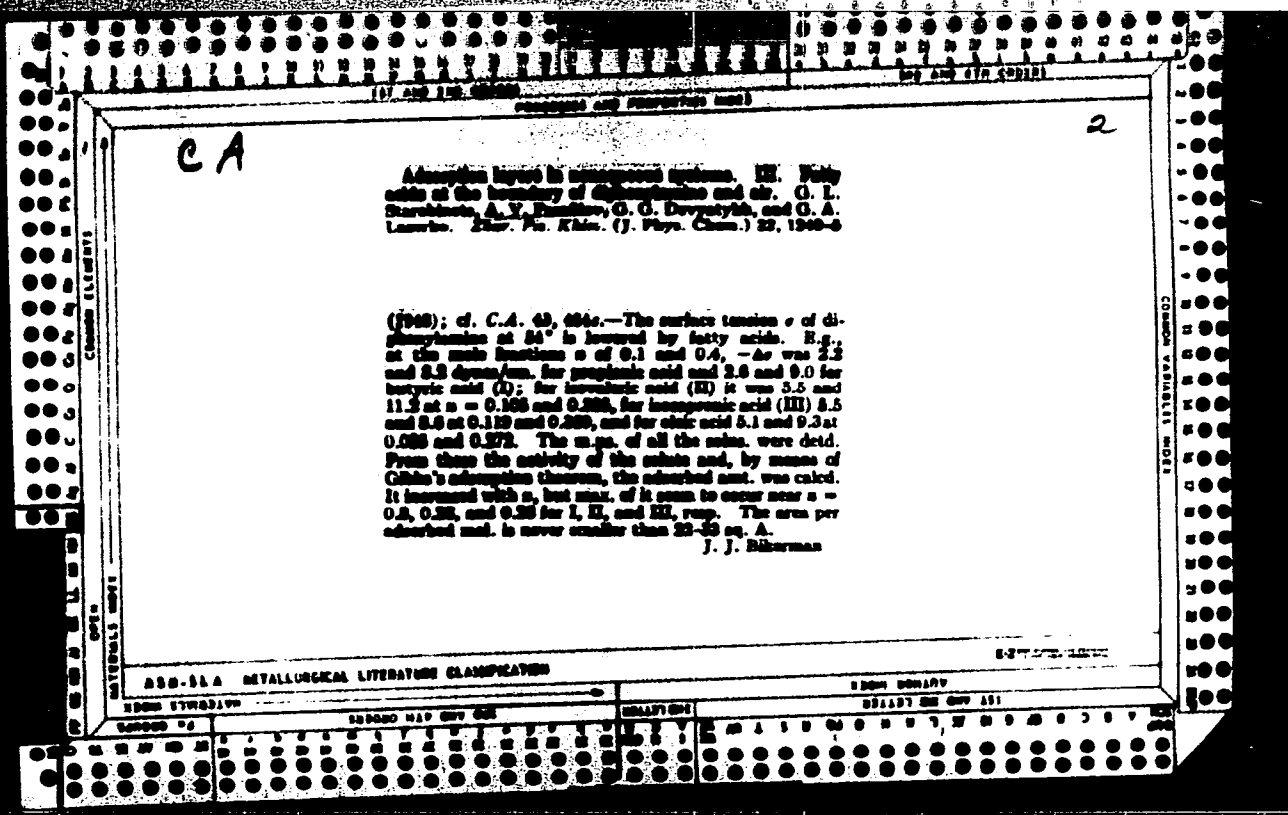
PAMFILOV, A. V.

G. G. Deviatykh, A. V. Pamfilov, G. L. Starabinetz, Adsorption layers in anhydrous systems. II. Alcohols on the boundary diphenylamine-air. I. 1972.

The surface tensions of solutions of ethyl, isopropyl, butyl, isobutyl, isoamyl, octadecyl and benzyl alcohols and cyclohexanone in diphenylamine over a wide range of concentrations from $N_2 = 0$ to $N_2 = 0.9$ at temperature 60°C have been measured. The freezing point lowerings for these systems have been determined and from these data the thermodynamic activity of the solution has been estimated.

The A. A. Zhdanov Industrial Institute
Gorki
September 17, 1947

SO: Journal of Physical Chemistry (USSR) 22, No. 5, 1948



Chemistry of titanium. XIX. Sulfates of quadrivalent titanium. A. V. Pankov and E. A. Khudyakova. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 40, 1443-52 (1966). C. A. 41, 5955d. In all the 13 sulfates described in the literature, only $\text{TiOSO}_4 \cdot 2\text{H}_2\text{O}$ could be isolated with certainty from solns. of TiO_2 in H_2SO_4 . Under no circumstances could a salt with a SO_4/TiO_2 greater than 1 be obtained. Expts. were run with freshly pptd. metatitanic acid precip. by soln. of tech. metatitanic acid in H_2SO_4 ; the commercial product dissolves completely only if the H_2SO_4 is no less than 60%. The product pptd. from such solns. by hydrolysis and dried at 110°C contains from 62 to 80% TiO_2 and from 27 to 43% H_2SO_4 . The loss is completely ad. in H_2SO_4 of at least 70%. That TiO_2 is chemically bound by H_2SO_4 , follows from the lowering of the boiling temp. is compared with solns. of H_2SO_4 of the same concn. At a const. ratio $r = \text{H}_2\text{SO}_4/\text{TiO}_2 = 4.1$, the ppt. obtained by a few hrs. refluxing from 60 to 70% H_2SO_4 consists of long needles of $\text{TiO}(\text{OH})_2 \cdot 2\text{H}_2\text{O}$. With H_2SO_4 over 5%, the ppt. consists of round grains, analyzing 50% TiO_2 , 4.1% and contg. less H_2O than the dihydrate. At intermediate concns. of H_2SO_4 , 20-75%, needles and round grains are sometimes intermingled. Neither ppt. is sol. in cold or hot H_2O , but they dissolve readily in cold or hot H_2SO_4 ; on heating, decompn. with evolution of SO_3 occurs. The ppt. is between 500 and 600%. At const. concn. of H_2SO_4 , 60%, and variable r , needles of $\text{TiO}(\text{OH})_2 \cdot 2\text{H}_2\text{O}$ can be crystd. between $r = 3$ and $r = 7$. At $r = 3$, crystals may begin from a turbid soln., but the residual undissolved TiO_2 dissolves with the progress of the crystals. With $r = 2$, some of the initially forming ppt. is powdery, but, subsequently, the powder goes over into needles. Completely at $r = 7$, incompletely at $r = 8$. Decompn. of tech. metatitanic acid with H_2SO_4 , 60-80%, and $r = 1.5$ gives the same results as the decompn. of the freshly pptd. product with $r = 4.1$. With the tech. product, H_2SO_4 of 60, 70, and 80% gives, resp., 42, 84, and 79% decompn.; the optimum, 70%, corresponds to crystals of the needle-shaped $\text{TiO}(\text{OH})_2 \cdot 2\text{H}_2\text{O}$. At higher concns. of H_2SO_4 , crystals of the needles can be initiated by inoculation. The granular ppt. formed in too concd. H_2SO_4 ($> 70\%$) goes over into the needle-shaped crystals on suitable diln. N. Thon.

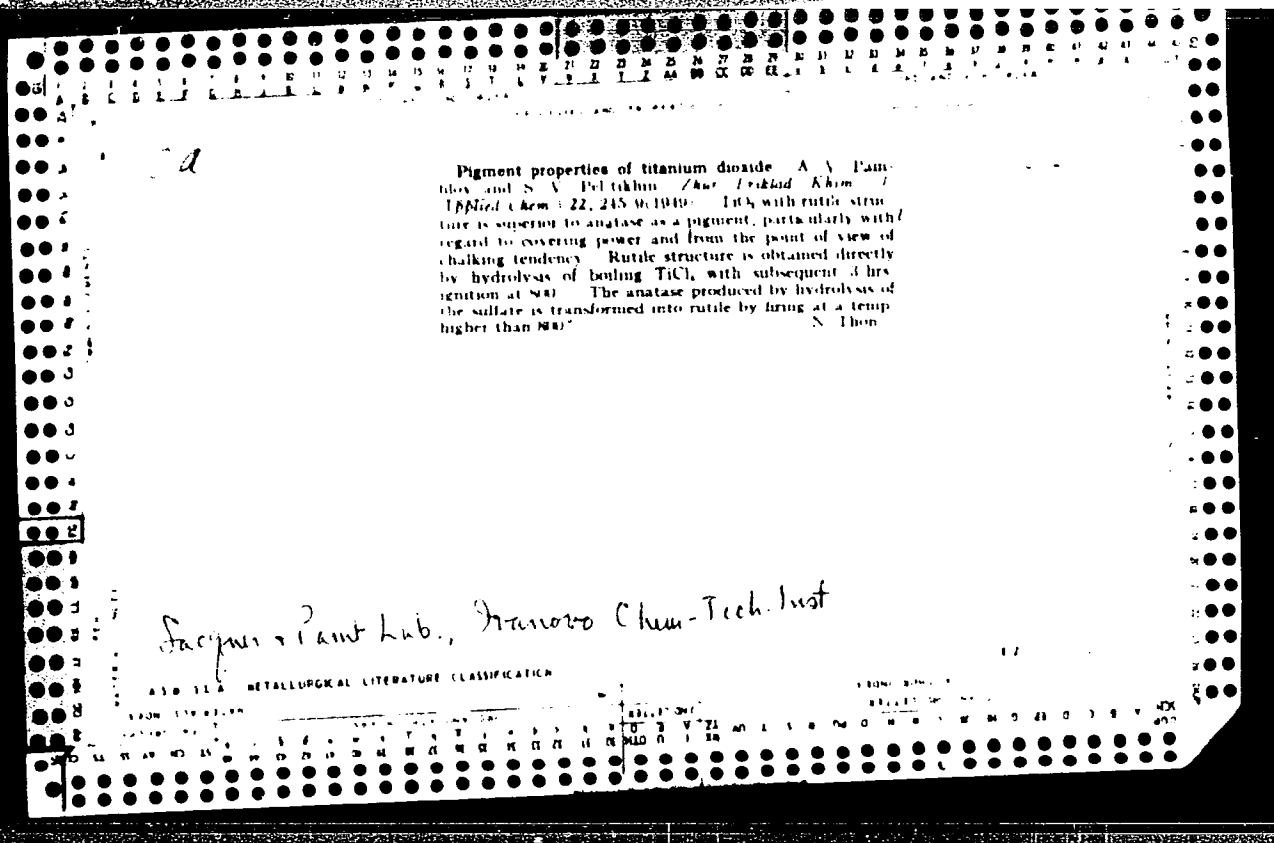
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Transformations of paint films. III. Films of condensed linseed oil. A. V. Pankov, F. G. Ivancheva, and V. P. Granenova. *Zhur Priklad. Khim. (J. Applied Chem.)* 22, 87 (1949), cf. C.A. 43, 1901b. Investigations analogous to those described before were carried out with pigmented and nonpigmented films, mostly 30-50 μ thick, made with partly polymerized or oxidized linseed oil instead of ordinary painter's linseed oil, specifically with (I) 12% polymerized oil (i.e. linseed oil requiring addn. of 12% lacquer kerosene to give the normal lacquer consistency), d. 0.957, acid no. 9.0, sapon. no. 192, iodine no. 111; (II) 35% polymerized oil, 0.980, 5.6, 192; (III) oxidized oil, 0.991, 5.6, 193, 111; and (IV) lacquer 15-a, acid no. 11.5, sapon. no. 185, iodine no. 73. With the same pigments, films made with the above condensed oils showed, on the whole, higher tensile strength and slower aging than films made with ordinary linseed oil (V). Films with "active" pigments, i.e. pigments with distinct basic properties (PbO, Zn white), age faster than films with "neutral" pigments, such as Fe₂O₃ or Cr₂O₃. With TiO₂, the films show a tendency to crumbling, but less rapidly than similar films with V. Whereas nonpigmented films of V have no mechanical strength at all, and similar films with III are hardly any stronger, films with I, II, and, particularly, IV, do have some tensile strength and elasticity, the latter becoming brittle only after 6-7 months. Films of I, with active pigments, became unfit for mech. tests after 6-8 months; with Fe₂O₃ and with Cr₂O₃, these films kept their mech. properties for 1 yr. With the same pigment, films with II were regularly superior to I. Films of III have a somewhat lower strength and a somewhat greater elasticity than I, and age more slowly, particularly with active pigments and with TiO₂. IV was on the whole inferior to I, II, and III.

Films of the latter, pigmented with ZnO, age faster than with PbO, whereas in I this order is reversed. Interaction (i.e. compd. formation) between the pigment and the oil, investigated by the previously described method of extraction with CHCl₃, is more vigorous with the condensed oils than with V. Partly, this interaction is due to the formation of stable suspensions, stabilized by the polymerized oil. It is more pronounced in I and II than in III.

N. Thon



PAMFILOV, A.V.

USSR.

V. The kinetics of absorption. M. Kh. Kishinevskii and A. V. Pamylyk. *Zhur. Priklad. Khim.* 22, 1173-82 (1949); *Chem. Abstr.* 43, 6930d. —A theory of absorption processes is developed based on the assumption that the material is transferred by convection diffusion. The flow of the substance in mole/cm. sec./min. is given by the equation $g = a_0 C$.

where a_0 is the av. linear velocity of the mol. motion and C is the concn. of the diffusing substance in mole/l. A general equation is given for the absorption kinetics that can be modified for the degree of turbulence in the reacting phase.

J. Rowin Leach

PAMFILOV, A. V.

USSR.

~~On Absorption of carbon dioxide by solutions of sodium hy-~~
~~droxide and sodium carbonate under conditions of intensive~~
~~mixing. M. Kh. Kishinevskii and A. V. Pamfilov. Zhur~~
~~Prilad. Khim. 22, 1183-90 (1949). See C.A. 43, 10304k,~~
~~where the journal reference is incorrectly given.~~
E. J. C.

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A

The method of calculating thermodynamic activity and the activities of some alcohols and fatty acids in diphenylamine. G. G. Bevvatkh and A. V. Pamfilov. *Zhur. Fiz. Khim.* 23, 1218-30 (1949), cf. *J. T. F.* 43, 7238. The probable error of calcd. values of the activity a_1 of Ph_2NH near its m. p. T_0 is not reduced by considering also terms contg. $(T_0 - T)^2$ in addn. to the main term $L_0 RT_0$ bc cause the uncertainty of the expl. data for the heat of melting L_0 and the heat capacities of solid and liquid Ph_2NH ; the final equation is $\ln a_1 = -0.02021 (T_0 - T)/T$, T is m. p. of the soln. From this a_1 the activity a_2 of the solute is calcd. graphically by plotting N_2/N_1 against $\ln(a_2/N_2)$, N_1 and N_2 are the mole fractions of Ph_2NH and solute, resp.; the results of this procedure are compared with those of earlier graphical methods. The values of $T_0 - T$ and of the most probable a_1 for $N_1 = 0.1, 0.5$, and 0.9 (at 53°) are for EtOH $4.7^\circ, 14.0^\circ$, and 30.3° , and $0.073, 0.139$, and 0.158 ; for *iso*-PrOH $5.1^\circ, 15.9^\circ$, and 34.1° , and $0.075, 0.154$, and 0.169 ; for BuOH $4.5^\circ, 15.6^\circ$, and 42.5° , and $0.075, 0.156$, and 0.184 ; for *iso*-BuOH $4.7^\circ, 15.1^\circ$, and 32.5° , and $0.073, 0.146$, and 0.163 ; and for *iso*-AmOH $5.0^\circ, 15.2^\circ$, and 40.5° , and $0.077, 0.168$, and 0.190 ; for *n*-C₁₀H₂₁OH at $N_1 = 0.01, 0.06$, and 0.20 , $T_0 - T$ is $0.40^\circ, 2.90^\circ$, and 4.90° and a_1 is $0.0083, 0.0385$, and 0.0490 . Many intermediate values are reported.

J. J. Bikerman

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Adsorption layers in nonequilibrium systems. IV. Alkyl phenols, alcohols and acids in nitrobenzene. A. V. Pamyatnykh, G. G. Devyatikh, and L. V. Shirokova (Inst. of Chem., Zhsr. Fiz. Khim. 24, 300-6 (1930); *J. C.A.* 43, 1234). Lowering ($\Delta\sigma$) of surface tension at 25° (distilled water) by the method of max. bubble pressure and depression of m.p. of PhNO₂ by alcs. and acids were, if the mole fraction of the added compd. was 0.1, 0.3, 0.5, 0.7, and 0.9, for EtOH 9.9, 15.9, 17.0, 18.2, and 20.1 g./sec., resp., and 3.3, 6.0, 6.9, 8.9, and 20.6°; resp.; for iso-PrOH 13.9, 18.5, 19.1, 20.3, and 21.5 g./sec. and 3.5, 4.8, 5.6, 6.3, and 11.7°; for BuOH 18.5, 17.1, 17.9, and 18.7 g./sec. and 5.0, 6.4, 8.3, and 23°; for iso-BuOH 11.4, 17.5, 19.1, 19.7, and 21.6 g./sec. and 3.0, 5.0, 5.4, 6.0, and 10.8°; for iso-AmOH 12.0, 17.3, 18.8, 19.5, and 20.0 g./sec. and 3.8, 5.1, 5.6, 7.2, and 18.6°; for PrCOOH 4.3, 8.7, 11.4, 14.4, and 18.0 g./sec. and 3.7, 10.0, 14.8, 20.6, and 24.2°; and for isovaleric acid 7.1, 12.0, 14.0, 16.8, and 18.4 g./sec. and 3.3, 8.0, 14.4, 20.6, and 20.6°. From these data the adsorption of the additive was calculated by 2 different methods. Contrary to the case of aq. solns. $\Delta\sigma$ in PhNO₂ depends on the nature of the polar group rather than on the chain length. The dependence of adsorption on chain length is different for acids in PhNO₂ and in PhNH₂. J. J. Biberman

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Adsorption layers in nonequilibrium systems. V. Aliphatic alcohols and acids in naphthalene. A. V. Fomilov, G. G. Devyatikh, and L. V. Shirshova (Zhurnal Ind. Inst., Gor'ki). *Zhur. Fiz. Khim.* 34, 823-7(1960); cf. C.A. 64, 6701f.—The surface tension of solns. of butyl, isobutyl, and isooctyl alcs. and of butyric and isovaleric acids in naphthalene was measured by the max.-bubble-pressure method. The surface excess concn. of the solute Γ_s was calcd. by means of the Gibbs equation, the activity of the solute having been obtained from cryoscopic data. The concn. Γ_s^0 of the surface-active substance in the surface layer is detd. by $\Gamma_s^0 = (A_s N_s \Gamma_s + N_s) / (N_s A_s + N_s A_s)$, where A_s (A_s) is the area occupied by one mole of solvent (solute) in the surface layer and N_s (N_s) is the mole fraction of solvent (solute). Γ_s^0 is plotted against N_s , and a max. in the curve is observed for the alcs. but not for the acids as found earlier (C.A. 64, 6701f) with diphenylamine and nitrobenzene as solvents. The adsorption thus depends on the type of interaction between solvent and solute molecules. Whereas the adsorption of solute from water solns. is detd. principally by the interaction between the nonpolar radical of the solute mol., the nature of the polar group of the latter having no substantial role, this very nature exerts a profound effect on the adsorption phenomenon when solvents of medium polarity are used and when the interaction between solvent mole. and the nonpolar radical of the solute mol. is weak.

Michel Boudier

CA

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ionization constant of acetic acid. A. V. Pavlov
and A. I. Agafonova (Chernovskii Univ., Chernovskiy).
Zhur. Fiz. Khim. 24, 1147-51 (1950).—The e.m.f. E of
 $\text{Ag}(\text{AgCl})|\text{NaAcO}_3(m_1), \text{NaHAcO}_3(m_2), \text{NaCl}(m_3)|\text{quin-}$
 hydrone, Pt , was measd. between 0° and 30° at 5° intervals,
with a precision of 0.0005 v. For six different concs., E
varies linearly with the temp. E taken from this linear
plot is substituted in the equation: $[(E_0 - E)F/2.303$
 $RT] + \log m_{\text{Ac}^-} - 2A\sqrt{\mu} = -\log m_{\text{Ac}^+}$, which is then
solved for μ and m_{Ac^+} by successive approximations ($E_0 =$
difference between standard potentials of the quinhydrone
and AgCl electrodes; $m_{\text{Ac}^-} = m_1$; $A = (0.4343 e^2/2 DKF)$
 $(4\pi^2 N/1000 DKF)^{1/2}$, with $D = \text{dielec. const. of solvent}$
and the usual notation). The values thus obtained are sub-
stituted in $\log m_{\text{Ac}^+} + \log m_{\text{H}^+} - \log m_{\text{HAc}} = 4A\sqrt{\mu}$
 $= \log K$, where K is the dissoc. const. of HAc , and
 $m_{\text{H}^+} = m_1 + m_{\text{Ac}^+}$; $m_{\text{HAc}} = m_2 - m_{\text{Ac}^+}$. The left-
hand side of this equation is plotted against μ and the curves
are extrapolated to zero μ . The values of $A \times 10^3$ are:
1.48 (0°), 1.48 (5°), 1.20 (10°), 1.24 (15°), 1.27 (20°), 1.20
(25°), 1.13 (30°). They obey the equation: $\log K + \mu^2 =$
 $\log K_0 - \mu^2 + 3\mu$ where μ is a const. (5×10^{-3}), K_0
is the max. value of K and μ_0 is the temp. at which this
max. occurs. A linear plot ($\log K + \mu^2$) vs. μ gives $K_0 =$
0.0164 and $\mu_0 = -15^\circ$. ΔF , ΔH , ΔC_p , and ΔS were calcul.
between 0° and 30° at 5° intervals, with the formulas:
 $\Delta F = -4.57 \log K_0 + 2.303 \times 10^{-4} (T^\circ - 273^\circ +$
 $T \mu_0)$; $\Delta H = 4.57 \times 10^{-4} T^2 (\mu_0 - T)$; $\Delta C_p = -4.57$
 $\times 10^{-4} (3T^\circ - 2\mu_0 T)$; $\Delta S = 4.57 (\log K_0 \times 5 \times 10^{-3}$
 $\mu_0^2 + 2 \times 10^{-3} \mu_0 T - 1.5 \times 10^{-3} T^2)$ (Ivanova and
Neiman, *C.A.* 43, 5552).

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Michel Boudart

PANFILOV, A. V.

"Effect of the Surface Finish on the Impact Strength of Certain Steels Used in Locomotive Construction." Sub 29 May 51, Moscow Mechanics Inst.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

Met Review PAMFILOV, A.V.
1952

Q - Mechanical Properties
and Test Methods,
Deformation.

179-Q. The Effect of the Smoothness of the Working Surface on the Resistance to Rupture Caused by Single and Repeated Impact. (In Russian.) G. I. Pogodin-Alekseev and A. V. Pamfilov. *Stanki i Instrument*, V. 22, Apr. 1961, p. 22-23.
See abstract from *Engineer's Digest*, Item 677-Q, 1961. (Q6, ST)

Box

Paints, Varnishes, Lacquers & Enamels

6393* Paint Films on Synthetic Bonding Agents. In Russian. A. A. Pamyigov and E. G. Ivanchova. *Thermal Park* *Labov Khimii* v. 21 July 1951 p. 742-747.
A study was made of the bonding strength of paints and lacquers containing various pigments. Results are discussed, tabulated, and charted.

PASPILOV, A. V.

Oxidation of lead oxide in an atmosphere of oxygen.
A. V. Paspilov, E. G. Ivanchova, and O. S. Burkovskaya
(State Univ. Chernovits). Zhurnal Obshchei Khim.,
Akad. Nauk S.S.S.R. 1, 5-8 (1953); cf. C.A. 41, 2832d.
 In an atm. of O the rhombic form of PbO oxidizes to PbO₂.
 Above the enantiomorphic transformation (488.5°) the
 tetragonal form oxidizes more rapidly. At 450° the oxida-
 tion rate increases very rapidly in air-oxygen mixts. up to
 50% O; increasing the percentage of O above 50% re-
 sults in insignificant rate increases. I. Bencowitz./

PAMFILOV, A.V.; MIKHAYLOVA, N.V.

Reaction of oxidizing lead oxide by air. Ukr.khim.zhur. 19
no.4:390-400 '53. (MLRA 8:2)

1. Chernovitskiy gosudarstvennyy universitet, laboratoriya
neorganicheskoy khimii.
(Lead oxide) (Oxidation)

~~PAMFILOV, A.V.;~~ MIKHAYLOVA, N.V.
Chromium chloride hydrates. Zhur.ob.khim. 23 no.7:1065-1068 J1 '53.
(MLRA 6:7)
(Chromium chloride)

A.V. PAMFILOY

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Inorganic Chemistry

③ 6
Sodium hexametaphosphate. A. V. Pamfilyov and N. M. Dombrovskii (State Univ., Chernovitskiy). *Zhur. Obshchei Khim.* 23, 1249-53 (1953). — NaH_2PO_4 heated to $620-30^\circ$ for 15-30 min. and cooled rapidly to room temp. yields a product contg. 89.5% P_2O_5 and consisting of Na hexametaphosphate (I) 90.5% and Na trimetaphosphate (II) 9.5%. Heating curves show endothermic reactions at $33-43^\circ$ (loss of one mol. of H_2O), $70-80^\circ$ (loss of a second mol. of H_2O), 114° (boiling), $198-206^\circ$ (pyrophosphate formation), $298-338^\circ$ (metaphosphate formation), 610° (fusion). Powd. I held at 330° for 3-5 minutes is converted to II. I has no definite m.p. C. H. Fuchsman

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11-5-54

PAMFILOV, A.V.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Cellulose and Paper

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② Not
The aging of nitrocellulose films. A. V. Pamfilov and A. D. Bichkov. *Zhur. Priklad. Khim.* 26, 227-31 (1953).
The loss of brightness as a measure of deterioration was detd. under accelerated weathering tests on nitrocellulose films made with and without pigments and was found to be due primarily to the absorption of ultraviolet rays by the pigment present (cf. *C.A.* 30, 8860⁹, 34, 5280⁹). Only those pigments which were decompd. by ultraviolet rays formed exceptions. The effect of light and water was greater than the sum of the effects of both separately. I. Bencowitz.

MA
7-14-54

PAMFILOV, A. V.

USSR.

✓ The light-fastness of lead chromate. A. V. Pamfilov and
A. D. Bochkov. *J. Appl. Chem. USSR* 1953-0
(1953) (Engl. translation).—See C.A. 48, 3041a.

H. L. II.

YESAULOV, P.G., general-mayor; PAMFILOV, D.N., polkovnik, redaktor

[Regulations for the routine administration of the Armed Forces of
the U.S.S.R.] Ustav vnutrennei sluzhby vooruzhennykh sil Soiuza SSR.
Moskva, Voen. izd-vo Ministerstva oborony SSR, 1954. 228 p.
[Microfilm] (MLRA 8:2)

1. Russia (1923- U.S.S.R.) Ministerstvo oborony.
(Russia--Armed Forces--Regulations)

PANFILOV, A. V.

Chemical Abstracts

Vol. 50, No. 5

May, 1954

Paints, Varnishes, Lacquers, and
Inks

The light-fastness of lead chromate A. V. Panfilov and
A. D. Bochkov. *Zhur. Priklad. Khim* 26, 681-5 (1953).
Crystal size affects the light-fastness of Pb chromate. To
increase the light-fastness, Pb chromate should be obtained
under conditions favoring the formation of large crystals.
This can be achieved by partial or complete substitution of
AcOH with HNO₃. There is some evidence that color
change is due to decompn into Pb oxide and Cr³⁺.

V. N. Bednarski

10-11-54
md

Lab Inorganic Chem., Chernovitsky University

Pamfilov, A. V.

CH The oxidation of lead oxide by the air. H. A. V. Pamfilov and N. V. Mikhailova (Siberian Univ., Cherepovets, U.S.S.R. Akad. Nauk, 2487, 20, 231-23 (1954); cf. ibid. 19, 390 (1953); C.A. 48, 12527c. The oxidation by air of active PbO preps. obtained from the decomn. of white lead was studied. The activity of the samples was increased greatly by pulverization. This had a particularly large effect for the samples having a rhombic structure. This was attributed to the increased rate of their polymorphic transition. Such factors as the state of the surface, the previous history of the sample, etc., often have a greater effect than does the cryst. structure on the rate of oxidation. J. B. Leach

PAMFILOV, A.V.; PANCHUK, O.E.; PANCHUK, I.E.

Electrodeposition of copper from thiocyanate solutions. Ukr. khim.
zhur. 21 no.3:400-404 '55. (MLRA 9:1)

1.Chernovitskiy gosudarstvennyy universitet, laboratoriya neorga-
nicheskey khimii.
(Copper plating) (Thiocyanates) (Electrolytes)

PAMFILOV , D.N., polkovnik, redaktor

[Drill regulations of the Armed Forces of the Soviet Union, with amendments and supplements, announced by orders of Ministry of Defense of the U.S.S.R., nos. 132 (1950) and 4 and 33 (1955)]
Stroevoi ustav Vooruzhennykh Sil SSSR. S izmeneniami i dop.
Ob"iavlennymi prikazami Ministra Oborony SSSR No.132 ot 1950 g. i
No.4 i 33 ot 1955 g. Moskva, 1955. 192 p. (MLRA 9:11)

1. Russia (1923- U.S.S.R.) Ministerstvo oborony.
(Russia--Armed Forces--Drill and tactics)

PAMFILOV, A. V.

5000

Electrodeposition of copper from thiocyanate solutions. A. V. Panchuk, G. E. Panchuk and I. E. Panchuk (*Ukr. Khim. Zh.*, 1955, 31, 300-304).—Bright, adherent microcryst. deposits are obtained on Fe, brass or Cu surfaces in an electrolyte consisting of KCNS 1000, CuCNS 20, Na₂CO₃ 25 and Na₂SO₄ 5 g. and water 1 l.; NaCNS may replace KCNS, but not NH₄CNS, since rough, non-adherent deposits are formed. At 15–50° and with c.d. of 3–5 amp. per sq. dm., the current efficiency is 95–97%. The instability const. of the K–Cu complex is 0.1215. R. Tauscor.

(2)

PM 1955

PAMFILE 71

Category: USSR

Abs Jour: RZh--Kh, No 3, 1981, 1981

Author : Pamylov, A. M. and Pashkova, N. I.

Inst : Not given

Title : Sulfates of Trivalent Chromium

Orig Pub: Zh. Obshch. Khimii, 1981, Vol. 49, No 4, 950-951

Abstract: The green modification of $\text{Cr}(\text{SO}_4)_3$ sulfate was obtained by the reduction of CrO_3 in sulfuric acid. Ordinarily a supersaturated solution is formed which after evaporation to a dark-green viscous mass and drying forms a vitreous substance of composition $\text{Cr}_2(\text{SO}_4)_3 \cdot 2\text{H}_2\text{O}$ (I). By contrast to the green form, the violet form has a composition $\text{Cr}_2(\text{SO}_4)_3 \cdot 1.5\text{H}_2\text{O}$ (II). The viscosity of solutions of II shows an insignificant increase with increasing concentration and up to 0.1 M corresponds to the viscosity of equimolar solutions of I. As the concentration is increased further the viscosity of I solutions rapidly increases from 1 cp at 0.1 M to 289.7 cp at 1.4 M. The cryoscopically determined molecular weights of I and II are 401 and 261, respectively.

Card : 1,2

-10-

Category: USSR

C

Abs Jour: RZh--Kh, No 3, 1957, 7774

In the opinion of the authors the higher apparent molecular weight and viscosity of I permit one to assume that large polymer particles are formed in these solutions. The change in color of the solution from green to violet is not related to the formation of basic salts, since it is accompanied by a decrease in the concentration of H ions. Solid I has a considerably greater affinity for water than II. At 120-125° I loses only 2.6 molecules of water, the remaining water being released only at 440-445°. At 80-85° II melts with the loss of ten molecules of water; the remaining 8 molecules are released at 110-115°.

Card : 2/2

-11-

PAMFILOV, A.V.; PUCHKOVA, N.N.

Trivalent chromium sulfates. Zhur.ob.khim. 26 no.4:955-957 Ap '56.
(MLRA 9:8)

1. Chernovitskiy gosudarstvennyy universitet.
(Chromium sulfates)

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-
chemical analysis. Phase transitions.

B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29953

Author : Pamfilov A. V., Prodan Ye. A.

Inst : not given

Title : Investigation of the System Tripolyphosphate of Sodium-Copper
Sulfate - Water.

Orig Pub: Ukr. khim. zh., 1956, 22, No 4, 427-433

Abstract: Determination, at 20 and 50°, of specific electric conductivity and viscosity of the system $\text{Na}_5\text{P}_3\text{O}_{10}$ - CuSO_4 - H_2O in the concentration interval of salt mixture 0.05 - 0.35 mol.% (at different ratios of salts). The formation was discovered, and the boundaries of occurrence were determined, of the compounds $\text{Cu}_3(\text{P}_3\text{O}_{10})_2$, $\text{CuNaP}_3\text{O}_{10}$, $\text{Cu}(\text{Na}_4\text{P}_3\text{O}_{10})_2$. Of these the last mentioned is described for the first time. Inaccuracies have been found in literature data.

Card : 1/1

-73-

PAMFILOV, R.V.

Sodium tripolyphosphate-cupric sulfate-water system.
 V. Pamfilov and I. S. Prodan (Sverdlovsk, Chernovyskiy
 Khim. Inst. Zhur. 22, 421 (1958) in Russian). The
 sp. cond. (k) and viscosity (η) were detd. for solns. of $\text{Na}_3\text{P}_3\text{O}_{10}$
 and CuSO_4 at total salt concns. of 0.05-0.35 mol. %
 and 20° and 50°. Plots of η , k , and ηk are given at const.
 concn. against concn. A highly insol. $\text{Cu}_3(\text{P}_3\text{O}_{10})_2$ is shown
 by a max. in all the η graphs. Max. in the k and ηk graphs
 show the existence of $\text{Cu}_2\text{NaP}_3\text{O}_{10}$ and mix. on these occur
 at the previously unreported $\text{Cu}(\text{Na}_2\text{P}_3\text{O}_{10})_2$. I. H. S.

PM mx

PAMF, 20V, A.V.

Mechanism of the electrodeposition of chromium

Chen
 CrO_3 ($1 \times 10^{-2} M$) in $0.1 N$ KCl has a max. at about -0.5 v., followed by waves of $E_{1/2}$ -0.95 and -1.73 v., compared to the satd. calomel electrode. The waves represent 3- and 6-electron processes, their heights are proportional to the CrO_3 concn., and they represent reduction to Cr^{3+} and Cr , resp. The max. is not affected by the presence of gelatin, methyl red, methylene blue, or BuOH , but disappears in $1 N$ KCl or in $0.01 N$ CaCl_2 . With a $0.1 N$ K_2SO_4 support the waves are similar but shifted towards more neg. potentials. Sometimes, but not always, a 4-electron wave ($E_{1/2}$ -1.5 v.) is observed. With $0.1 N$ solns. of CrO_3 in $0.1 N$ KCl there is a diffusion current at the end of the -0.95 v. wave but not at the end of the -1.73 v. wave. This is due to the fact that the Cr^{3+} complex with CrO_3 and K_2SO_4 representing reduction to Cr^{3+} is more stable than the chromium complex with KCl .

PAMFILOV, A. V.

Trivalent chromium sulfates. A. V. Pamfilov and N. N. Puchkova. *Izv. Akad. Nauk SSSR Khim. Neorg. Soedin.* 1964, No. 1, 104-105.

greatly above 1.27M and becomes 289.9 centipoises at 1.84M. II is thermally more stable, losing 2.5 mols. H₂O at 120-5° and the remaining H₂O at 440-50°, while I melts and loses 10 mols. H₂O at 80-5° and the remaining H₂O at 110-15°. Cryoscopic mol wts are 241 for I and 405 for II.

PAMFILOV, A.V.; PUCHKOVA, N.N.; KOKHANOVA, L.P.

Nitrates of trivalent chromium. Zhur. neorg. khim. 1 no. 12:2712-2715
D. '56. (MIRA 10:6)

1. Laboratoriya fizicheskoy khimii Chernovitskogo universiteta.
(Chromium nitrates)

PAMFILOV, A.V. : LOPUSHANSKAYA, A.I.

Mechanism of the electrodeposition of chromium. Ukr. khim. zhur. 22
no.5:578-585 '56. (MLRA 10:6)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Chromium oxides) (Polarography)

PAM FILOV, A.V.

green and the violet modification. The
difference in the structure of the 2 modifications was
detd. experimentally, and it was concluded that the differ-
ence lay in varying amounts of H₂O of water molecules
bound to the

10
MT

PAMFILOV, A. V.

Change of constants of linseed oil films as a function of aging. A. V. Pamfilov and R. G. Ivanchov (Univ., Chernouyev). *Zhur. Priklad. Khim.* 30, 305-9 (1967); cf. C.A. 47, 46274. An attempt is made to find an index of serviceability of paints by a correlation of the chem. properties of films since it was previously shown (loc. cit.) that the mech. properties cannot serve as dependable criteria. Pigmented and unpigmented films of linseed oil were aged and analyzed. The O and I nos. did not show any appreciable change after 50 days. The sapon. no. changed rapidly with time and may be utilized as an index of serviceability of paints.

I. Roncovitz

RM
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2 may

Use of Arrhenius kinetic equation in electrodeposition at small polarization values

and the effect of the rate of deposition of Pb on the rate of Pb(OAc)₂ and on the rate of Pb(OAc)₂ at 20-60°. Plots of the log c.d. at const. polarization against reciprocal temp. were made. The polarization ranged from 10 to 62 mv. The lines were straight with the exception of a bend in the region of 60-65°. Above this temp. the energy of activation of the deposition was 2-3.6 and below this temp. 3.3-3.8 kcal. These small values indicate that the polarization is a concn. effect under the conditions studied. The log sp. cond. of 0.1M Pb(OAc)₂-0.2M HOAc mixts. plotted against reciprocal temp. also has a break in the same region. The energies of activation of elec. cond. are 2.5-3.0 above and 3.2 kcal. below 60°. These similarities in behavior are interpreted as meaning that the breaks in the electrodeposition curves are a cond. effect and not due to H evolution. Measurement of the H overvoltage in an acetate buffer indicates that H can hardly be discharged in the conditions studied.

John Howe Scott

PAMFILOV, A.V.; PANCHUK, O.E.

Effect of naphthalenesulfonic acids on the process of electrodeposition of nickel. Part 1: Cathodic polarization. Ukr. khim. zhur. 23 no.3:391-396 '57. (MLBA 10:9)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Naphthalenesulfonic acid) (Nickel plating)

PAMFILOV, A.V.; MORGART, P.M.

Effect of substances containing bivalent sulfur on the process of nickel plating. Ukr. khim. zhur. 23 no.5:684-688 '57. (MLRA 10:11)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Sulfur) (Nickel plating)

PAMFILOV, A.V.; LOPUSHANSKAYA, A.I.; GUSEL', Ye.B.

Complexes of certain metals with polyphosphate. Ukr. khim. zhur.
23 no.3:297-302 '57. (MLRA 10:9)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Complex compounds) (Phosphates)

Pamfilov, A. V.

USSR / Physical Chemistry - Electrochemistry.

F-12

Abs Jour : Referat. Zhurnal Khimiya, No.1, 1958, 567.

Author : A.V. Pamfilov, O.E. Panchuk.

Inst : -

Title : Influence of Naphthalenesulfoacids on Process of Electrolytic Precipitation of Nickel. 1. Cathode Polarization.

Orig Pub : Ukr. khim. zh., 1957, 23, No.3, 391 - 396.

Abstract : The influence of the series of naphthalenesulfoacids (I) (0.1 to 6 g per lit) on the cathode polarization (CP) at the electrolytic precipitation of Ni from a sulfate solution at various temperatures (25 to 55°) and various current densities (0.1 to 2 a per square inch) was studied. It is shown that the introduction of various isomers of I but little influences the magnitude of CP, sometimes a little depolarization occurs. The obtained results are discussed from the point of view of reduction of I on the cathode, formation of Ni sulfide and its reduction.

Card: 1/1

Pamfilov, A. V.

PAMFILOV, A.V.; TSINMAN, A. I.

Overtension of oxygen on platinum. Ukr. khim. zhur. 23 no.5:579-583
'57. (MLBA 10:11)
(Electrochemistry) (Oxygen) (Platinum)

PAMFILOV, A.V.; IVANCHEVA, Ye.G.

Time-dependent changes in various constants of linseed oil films.
Zhur.prikl.khim. 30 no.2:306-309 F '57. (MLBA 10:1)

1.laboratoriya fizicheskoy khimii Chernovitskogo universiteta.
(Linseed oil) (Paint)

PAMFILOV, A.I.

73-2-5/22

AUTHORS: Pamfilov, A.V. and Tsinman, A.I.

TITLE: Application of the Arrhenius' kinetic equation to the electrolysis with low values of polarization. (Primeneniye kineticheskogo uravneniya Arrheniusa k elektrolizu pri malyykh velichinakh polyarizatsii).

PERIODICAL: "Ukrainskiy Khimicheskii Zhurnal" (Ukrainian Journal of Chemistry), Vol.23, No.2, March-April, 1957, pp.168-173, (USSR).

ABSTRACT: S.V.Gorbachev (Ref.1: S.V.Gorbachev: Zh.Fiz.Khimii, 1950, Vol.24, 888) investigated the relation between the speed of electrolysis and temperature that the character of polarisation can be determined by the application of the kinetic equation given by Arrhenius. V.A.Pleskov and N.B.Miller (Ref.3: V.A.Pleskov and N.B.Miller: Trudy Soveshchaniya po Elektrokhemii, Izd.AN SSSR, Moscow, 1953, 165) investigated changes in the current of amalgams of bismuth, lead and zinc and found a linear relation between the logarithm of the current density change and the inverse temperature. This fact leads to the conclusion that the equation by Arrhenius must also apply for small values of polarisation. The authors verified this theory by testing cathodic deposits of lead from its salt solu-

Card 1/3

73-2-5/22

Application of the Arrhenius' kinetic equation to the electrolysis with low values of polarisation. (Cont.)

tions, as sufficiently strong currents at small polarisation values can be obtained in these solutions. The electrolysis of aqueous solutions of lead nitrate and lead acetate proved the existence of a linear relation between the logarithm of the current density and the inverse temperature of polarisation at considerably lower values than 0.1 volt. The changes of cathodic polarisation with the varying current density in a 0.1 mole solution of lead nitrate and in a 0.01 mole solution of zinc acetate containing 0.02 mole acetic acid for different temperatures are given in diagrams 1 and 2. It is also shown that the polarisation is a function of the temperature during constant current density (Diagram 4.). During small current densities (0.17 to 0.09 ma/cm²) this relation can be defined directly. The polarisation at constantly increasing temperatures was measured at constant current densities for this investigation. It is shown that the polarisation changes considerably more at low temperatures and that it changes insignificantly at

Card 2/3

USSR/Physical Chemistry - Electrochemistry.

B-12

Abstr Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3961.

Author : A.V. Pamfilov, A.I. Tsinnman.

Inst :

Title : Applicability of Arrhenius's Kinetic Equation to Electrolysis at Small Polarization Magnitudes.

Orig Pub: Ukr. khim. zh., 1957, 23, No 2, 168-173.

Abstract: The cathode deposition of Pb from a 0.1 M solution of $Pb(NO_3)_2$ and a 0.01 M solution of $Pb(CH_3COO)_2 + 0.02$ M of CH_3COOH was studied by the method of polarization curves, and the specific electric conductivity κ of these solutions was also measured. The dependence of the current density i on the cathode polarization ΔE appears to be linear at a constant temperature; the values of $(\partial i / \partial E)$ rise linearly with the T rise from 20 to 80°. The dependences of

Card : 1/2

-3-

Card : 2/2

-4-

73-3-2/24

On the Complexes of Certain Metals with Polyphosphate.

tripphosphate is added but they are shifted towards the negative values. The waves of these ions disappear when further quantities of triphosphate are added. Solutions of nickel-, cobalt-, copper or zinc-salts do not give precipitates with a solution of triphosphate; however, solutions of lead- or cadmium-salts give a white precipitate which is soluble in excess triphosphate. The potentials of the half-waves shift towards the negative values during the polarography of lead and cadmium-salt solutions in the presence of considerable excess of Na-triphosphate. Figure 1 gives the dependence of $\log i/(i_d - i)$ on the

potential, obtained from the polarogram of a 1.10×10^{-3} mole lead solution, 0.35 mole triphosphate and a 1.0 N potassium nitrate (Fig. 2). The carbon coefficient = 0.036 v which nearly equals the calculated value of 0.030v, when $n = 2$. The relation of the half-wave potential of lead and the concentration of triphosphate is given in Table 2 and Figure 3, the relation of the half-wave potential of cadmium and the concentration of KNO_3 is given in Table 3. Table 4 illustrates the changes in the half-wave potential of cadmium with the concentration of

Card 2/3

73-3-19/24

AUTHOR: Pamfilov, A. V. and Panchuk, O. E.

TITLE: Effect of Naphthalenesulphonic Acids on the Electrical Precipitation of Nickel. 1. Cathodic Polarisation. (Vliyaniye Naftalinsul'fokislot na Protsess Elektro-osazhdeniya Nikelya. 1. Katodnaya Polyarizatsiya)

PERIODICAL: Ukrainskiy Khimicheskii Zhurnal, 1957, Vol. 23, No. 3, pp. 391-396 (USSR).

ABSTRACT: Insufficient data are published on the magnitude of the cathode polarisation during the precipitation of nickel from baths containing varying quantities of isomeric mono-, di- and trisulphonic derivatives of naphthalene. The effect of a number of naphthalene-sulphonic acids during the electroplating of nickel was investigated at 25, 40 and 55° C at a current density of 0.1 - 2a/dm². Figures 1 and 2 show the dependence of the cathode potential on the current density when varying amounts of 1-naphthalenesulphonic acid and 1,3-naphthalenedisulphonic acids were added. The concentration of the acids was: 0.1, 0.5, 1.3 and 6 g/litre. The addition of naphthalene-sulphonic acids was proved to affect only slightly the magnitude of the cathode potential, sometimes a slight depolarisation occurred. The obtained results are discussed on the basis of the following processes: the reduction

Card 1/3

Effect of Naphthalenesulphonic Acids on the Electrical Precipitation of Nickel. 1. Cathodic Polarisation. 73-3-19/24

of the sulphonic acids, the formation of the nickel sulphide and its subsequent reduction. Obtained results did not confirm Roth's and Leidheiser's (Ref. 5) results who claimed that one of the conditions for obtaining shiny, lustre deposits was to increase the excess voltage by 20 - 50 mV when introducing the lustre-forming materials. The authors showed that they obtained sufficiently shiny deposits when the magnitude of the cathode potential had a higher positive charge than the initial bath. The tests carried out showed that no series of additives can be compiled according to their effect on the magnitude of the cathode potential. The curves on the diagrams show that all the investigated additives act alike in the given limits. Likewise, higher concentrations influence only slightly the magnitude of the cathode polarisation. There are 2 figures and 18 references, 7 of which are Slavic.

SUBMITTED: December, 19, 1956.

ASSOCIATION: Chernovtsy University Physical Chemistry Laboratory.

Card 2/3

73-3-19/24

Effect of Naphthalenesulphonic Acids on the Electrical Precipitation of Nickel. 1. Cathodic Polarisation.

(Chernovitskiy Universitet, Laboratoriya Fizicheskoy Khimii)

AVAILABLE: Library of Congress.

Card 3/3

PAMPILOV, A.V.; MUSHII, R.Ya.

Effect of the acidity of the initial solution on the photostability
of lead chromate. Zhur.prikl.khim. 30 no.4:636-639 Ap '57.
(MIRA 10:7)

1. laboratoriya fizicheskoy khimii Chernovitskogo universiteta.
(Lead chromate)

PAMFILOV, A.V.; MUSHIY, R.Ya.; MAZURKEVICH, Ya.S.

Photocatalytic activity of zinc oxide. Ukr.khim.zhur. 24 no.5:599-601
' 58. (MIRA 12:1)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Zinc oxide) (Catalysts)

PAMFILOV, A.V.; PANCHUK, O.E.

Effect of naphthalenesulfonic acids on nickel plating. Part 3:
Effect of the electrolyte acidity. Ukr. khim. zhur. 24 no.3:399-403
'58. (MIRA 11:9)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Nickel plating) (Hydrogen-ion concentration)

MUSHIY, R.Ya.; PAMFILOV, A.V.

Photoreduction of methylene blue on titanium dioxide. Ukr. khim.
zhur. 24 no.4:462-466 '58. (MIRA 11:10)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Photochemistry) (Methylene blue)

74-27-6-2/6

AUTHORS: Lopushanskaya, A. I., Pamfilov, A. V. (Chernovtsy)

TITLE: Alternating Current in Electrochemical Kinetics (Peremennyy tok v elektrokhimicheskoy kinetike)

PERIODICAL: Uspekhi khimii, 1958, Vol 27, Nr 6, pp. 669 - 689 (USSR)

ABSTRACT: In the course of the investigation of electrode processes alternating current is frequently used, so that it is possible to investigate not only the binary layer (Refs 1 - 7) but also to determine the points of the zero-charge of metals (Refs 8 - 11) in order to form a comprehensive opinion of the kinetics of various stages of the electrochemical process and of the passivation processes (Refs 12 - 23, 30 - 37). In the course of recent years increasing interest has been shown for methods of investigating non-steady processes. This is the case also with the method of superimposing alternating current upon direct current. There follows a discussion of initial investigations by means of alternating current. Two different opinions were expressed with respect to the nature of the electrode resistance (and in this connection some knowledge was also acquired concerning the nature of

Card 1/3

Alternating Current in Electrochemical Kinetics

50474-27-6-2/6

the modification of the electron potential as a result of the passage of the current). There follows a discussion of the statements made by F. Kohlrausch (Kol'raush) (Ref 38). According to E. Warburg (Varburg) (Ref 39) only Faraday (Faradey) currents exist in electrolysis. Warburg developed his theories in the course of a more voluminous work (Ref 40) based on the interpretations given of his electrocapillary theory (Ref 41). A more comprehensive theory was developed by F. Krüger (Kryuger) (Ref 42). According to Frumkin (Ref 43) the theory developed by Krüger has in many respects been surpassed by A. P. Sokolov. There follows a detailed discussion of Krüger's theory (equations 2 - 10). The present survey then deals with the works by Dolin and Ershler (Ref 12) on the kinetics of the discharge of hydrogen ions. Further, the methods of measuring the capacity of the binary layer on solid electrodes is discussed by Leykis and Kabanov (Ref 47). The opinions expressed by several authors (Refs 14, 15, 20, 23, 25) who further developed this theory are very similar to one another; the equations which they obtained are identical and differ only somewhat with respect to the conclusions drawn. The method of superimposing alternating current upon direct current was employed by

Card 2/3

Alternating Current in Electrochemical Kinetics

74-27-6-2/6

Frumkin and Melik-Gaykazyan (Refs 68 - 71) when investigating the kinetics of the adsorption processes of surface-active substances on the electrode. It was shown that the slowest stage (determining the velocity of the adsorption process of the alcohols) is the diffusion of the substances adsorbed. The author continues by saying that the method of superimposing alternating current on direct current promises to be of great usefulness in connection with the investigation of electron processes and of the chemical sources of the current and the phenomena of corrosion. There are 9 figures and 81 references, 43 of which are Soviet.

1. Electrochemistry--USSR
2. Alternating current--Applications
3. Electrodes--Resistance

Card 3/3

PAMFILOV, A.V.; PAFCHUK, O.E.

Effect of naphthalenesulfonic acid on the electrodeposition process
of nickel. Part 2: Luster of electrolytic deposits. Ukr. khim. zhurn.
24 no. 2:266-273 '58. (MIRA 11:6)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Electroplating)
(Nickel)
(Naphthalenesulfonic acid)

SOV/80-32-5-24/52

5(4)

AUTHORS: Pamfilov, A.V., Morgant, R.M.

TITLE: On the Cause of the Luster of Electrolytic Precipitates of Nickel

PERIODICAL: Zhurnal prikladnoy khimii, 1969, Vol 32, Nr 5, pp 1066-1071 (USSR)

ABSTRACT: Texture is considered by many authors [Refs 1-5] as cause of the luster of nickel precipitates. Gorbunova [Ref 3] found that at a texture axis $\langle 100 \rangle$, in which tube faces protrude on the surface, the precipitates have a greater luster than in the axis $\langle 111 \rangle$, in which trihedral angles protrude. But Arkharov [Ref 4] found just for this case a higher luster. The direction of texture formation was determined by the Polani method varied by Palatnik [Ref 5]. The texture was produced by sulfur-containing additions as luster-forming agents [Ref 6]. Textures of the thickness 10 and 60 μ at the temperature of electrolysis of 20, 40 and 60°C were studied. Precipitates, the luster of which is in the interval 7-10, have the texture axis $\langle 100 \rangle$, $\langle 112 \rangle$, $\langle 112 \rangle$, $\langle 120 \rangle$ and $\langle 112 \rangle$, $\langle 120 \rangle$, $\langle 100 \rangle$. A precipitate of 10 μ obtained without addition at 20°C and 1 A/dm² has the texture $\langle 120 \rangle$, $\langle 112 \rangle$. At 60 μ a simplification of the texture is observed. For current densities of 15-18 A/dm² the axis $\langle 110 \rangle$ is

Card 1/2

SOV/80-32-5-24/52

On the Cause of the Luster of Electrolytic Precipitates of Nickel

characteristic. Precipitates of 10μ with the addition of 0.05 g/l hydrobromic thiamine are characterized by a texture $\overline{120}$, $\overline{112}$ and $\overline{120}$, $\overline{112}$, $\overline{100}$. In a single case only the axis $\overline{110}$ was observed. There is no relation between the luster and the texture. Among 44 samples of highly-lustrous precipitates 12 were disoriented and only 8 had a high degree of texture formation. Fine-crystalline properties of the precipitates is also not the cause $\overline{\text{Ref 9}}$. It is most probable that the luster is due to the smoothing of submicroscopic protrusions on the surface $\overline{\text{Ref 11}}$. The director of the chair of metal physics, G.P. Kushta, helped in the work. There are: 3 tables and 11 references, 7 of which are Soviet and 4 English.

ASSOCIATION: Laboratoriya fizicheskoy khimii Chernovitskogo universiteta (Laboratory of Physical Chemistry of the Chernovtsy University)

SUBMITTED: March 10, 1958

Card 2/2

PAMFILOV, A.V.; LOPUSHANSKAYA, A.I.

Mechanism of the electrodeposition of chromium. Ukr. khim. zhur. 26
no.4:461-465 '60. (MIRA 13:9)

1. Chernovitskiy gosudarstvennyy universitet, laboratoriya fizicheskoy
khimii.

(Chromium plating)

S/076/60/034/008/039/039/XX
B015/B063

AUTHORS: Pamfilov, A. V., Khomyakov, K. G., Kobozev, N. I.
TITLE: Yevgeniy Ivanovich Shpital'skiy (On the Occasion of the 80th Anniversary of His Birthday)
PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 8, pp. 1887-1889

TEXT: The 80th anniversary of the birthday of the Soviet physicochemist Ye. I. Shpital'skiy was celebrated on October 12, 1959. Shpital'skiy, Professor of Moskovskiy universitet (Moscow University) and Corresponding Member of the Akademiya nauk SSSR (Academy of Sciences USSR), was a student of Professor I. A. Kablukov at the fiziko-matematicheskii fakul'tet Moskovskogo universiteta (Department of Physics and Mathematics of Moscow University) where he acquired the right of holding academical lectures. He left Russia for some time to work in the field of catalysis at several foreign universities. Back to Moscow he was appointed assistant to the kafedra neorganicheskoy khimii (Chair of Inorganic Chemistry) where he held a practical course on physical chemistry. He was then a collaborator

Card 1/2

Yevgeniy Ivanovich Shpital'skiy (On the Occasion of the 80th Anniversary of His Birth- BO'5, BG63 day)

S/076/60/034, 008, 039, 039 XX

of N. N. Petin, later Professor of Moscow University. It was at that time that Shpital'skiy began research work on homogeneous catalysis which was the principal field of his scientific work until his death. During the First World War he was engaged in the development of explosives and in the synthesis of phosgene, in cooperation with A. V. Pamfilov, K. G. Khomyakov, Ye. A. Shilov, V. V. Razumovskiy, E. F. Krauze, M. G. Stolitsa, V. S. Zaykov, Ye. F. Den'gin, and others. At that time Shpital'skiy closely cooperated with N. D. Zelinskiy. In 1923 he resumed his studies on homogeneous catalysis and worked at Moscow University together with his collaborators A. D. Funk, P. I. Sokolov, V. V. Monblanova, V. A. Komandin, B. A. Konovalova, Ye. I. Burova, Z. A. Ioffa, N. I. Kobozev, N. I. Nekrasov, M. Ya. Kagan, A. L. Shneyerson, V. V. Picheta, and others. In 1927 he published his principal work on the theory of catalytic intermediates. This work contains many exact and concise formulations which are still considered to be of fundamental importance in this field. Shpital'skiy also specialized in applied and theoretical electrochemistry. There is 1 figure.

Card 2/2

PAMFILOV, A.V.; KUZUB, V.S.; KUZUB, L.G.

Effect of the anions and the temperature on the rate of
electrodeposition of cadmium, iron, copper, and zinc.
Ukr. khim. zhur. 26 no.2:174-181 '60. (MIRA 13:9)

1. Chernovitskiy universitet, laboratoriya fizicheskoy
khimii.

(Zinc plating)	(Copper plating)
(Iron plating)	(Cadmium plating)

PAMFILOV, A.V.; KUZUB, V.S.

Effect of the solution temperature and composition on the
capacity of the cadmium electrode. Ukr. khim. zhur. 26
no.2:182-187 '60. (MIRA 13:9)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Electrodes) (Cadmium)

s/080/60/033/007/019/020
A003/A001

AUTHORS: Pamfilov, A. V., Kuzub, V. S., Tovmach, L. P.

TITLE: Lustrous Cadmium-Plating From Acidic Baths

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 7, pp. 1669-1671

TEXT: Cadmium-plating from acidic baths by means of current reversal effected by a variant of APT-2 (ART-2) electronic breaker (Ref. 3) was investigated. The duration of the anode (t_a) and cathode periods (t_c) was regulated independently of each other. The deposition was carried out on brass samples and partially on copper samples with a total surface of 4 cm². The thickness of the coatings was 10-20 μ . The anodes were made of chemically pure cadmium. The range of current densities was 0.5-4 amp/dm². The bath had the following composition (in g/l): CdO 19, KHSO₄ 45, (NH₄)₂SO₄ 10. The structure of the deposit is affected by the

$$\frac{t_c}{t_a}$$

ratio and by the duration of the cycle T. Already at T = 11 sec and $\frac{t_c}{t_a} = 10$

Card 1/2

PAMFILOV, A.V. (Chernovtsy); DOLGAYA, O.M. (Chernovtsy)

Temperature dependence of the electric conductivity of aqueous solutions of electrolytes and its relation to the structure of water. Zhur.fiz.khim. 37 no.8:1800-1804 Ag '63. (MIRA 16:9)

1. Chernovitskiy gosudarstvennyy universitet.
(Electrolyte solutions) (Water)

LOPUSHANSKAYA, L.I.; LAMBERT, J.D.; TSISALI, I.A.
APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238920002-4"

Galvanostatic study of some chromium (III) salts. Zhur. fiz. khim. 30 no.8:1777-1780 '54.

1. Chernovitskiy gosudarstvennyy universitet.

LOPUSHANSKAYA, A.I.; FAMELOV, A.V.; BALTER, A.M.

Relation between the free energy of activation and the specific
rate of a reaction. Zhur. fiz. khim. 38 no.9:2158-2161 S '64.
(MIRA 17:12)

1. Chernovitskiy gosudarstvennyy universitet.

L 42403-65 ENG(j)/EWT(m)/EPF(c)/EPR/ENP(t)/ENP(b) Pr-4/Ps-4 LJP(c) JD

ACCESSION NR: AP5008858

S/0073/65/031/003/0252/0257

28
26
B

AUTHOR: Mazurkevich, Ya. S.; Noval'kovskiy, N.P.; Pamfilov, A.V.; Savitskiy, A.V.

TITLE: Magnetic susceptibility and photocatalytic activity of zinc oxide and titanium oxide

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 31, no. 3, 1965, 252-257

TOPIC TAGS: ²⁷zinc oxide, ²⁷titanium oxide, magnetic susceptibility, photocatalytic activity

ABSTRACT: The study was made in order to determine the relationship between the magnetic susceptibility of zinc oxide and titanium oxide and their photocatalytic activity. The magnetic susceptibility measurements involved the use of automatic weighing and magnetic field stabilization (a diagram of the device used is given). The variation in the specific magnetic susceptibility of ZnO as a function of temperature and of preliminary thermal treatment in hydrogen was determined, and the influence of reduction on the temperature dependence of the specific magnetic susceptibility of TiO₂ was established. It was found that between the photocatalytic activity of the oxides of zinc and titanium and their paramagnetism there exists a relationship which confirms the hypothesis that the

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ACCESSION NR: AP5008858

centers of the photocatalytic processes in these compounds are the Zn^{+} and Ti^{3+} ions.
"We express our appreciation to K.D. Tovstyuk for enabling us to carry out certain
measurements." Orig. art. has: 5 figures, 1 formula and 1 table.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Chernovtsy State University)

SUBMITTED: 08Jul63

ENCL: 00

SUB CODE: IC, EM

NO REF SOV: 007

OTHER: 011

Card 2/2

87519

S/073/60/026/002.004.001
B023/B067

54600 1087, 1273, 1043

AUTHORS:

Pamfilov, A. V., Kuzub, V. S., and Kuzub L. G.

TITLE:

Effect of Anions and Temperature on the Rate of Electrodeposition of Cadmium, Iron, Copper and Zinc

PERIODICAL:

Ukrainskiy khimicheskiy zhurnal. 1960. Vol. 26, No. 2.
pp. 174-181

TEXT: The authors describe their studies of the effect of anions and temperature on the electrodeposition of cadmium, iron, copper, and zinc. In electrodeposition the anions which were studied at 25°C may be divided into the following series as to their effect on cathodic polarization: $\text{NO}_3^- > \text{SO}_4^{2-} > \text{CH}_3\text{COO}^- > \text{Br}^- > \text{I}^- > \text{Cl}^-$ which agrees with published data (Refs. 10 and 11). At 55°C (Fig. 1), however, the nature of the effect is largely changed and the series reads as follows: $\text{Br}^- > \text{I}^- > \text{Cl}^- > \text{NO}_3^- > \text{SO}_4^{2-} > \text{CH}_3\text{COO}^-$. Fig. 2 shows that in the electrolyte with oxygen-containing anions (CdSO_4 , $\text{Cd}(\text{NO}_3)_2$) the rate of electrolysis

Card 1/4

87519

Effect of Anions and Temperature on the Rate of Electrodeposition of Cadmium, Iron, Copper, and Zinc

S/073/60/026/002.004.015
B023/B067

increases with increasing temperature, then passes a maximum at 55°C and finally decreases. In the salts of haloid acids (except HF) the processes are inhibited at this temperature. The different behavior of these two groups of anions becomes manifest at certain potentials and concentrations of the electrolyte. The addition of 1 to 10 mmole/l I⁻ or Br⁻ ions is sufficient to transform the maximum which is observed at 0.25 N CdSO₄ into a minimum. In the case of more strongly concentrated solutions the maximum and the minimum disappear independently of the nature of the anions. A similar dependence is observed with iron, zinc, and copper (Figs. 4, 5, and 6). The measurements of hydrogen overvoltage in 0.05 N K₂SO₄ on smooth platinum at different temperatures showed that in the region of the potentials which are on the left of the zero-charge potential of platinum ($\eta = 0.2V$) polarization decreases (Fig. 8) with an increase in temperature to 45°C. It then increases and the curves of the coordinates $\log i = f(1/T)$ show a maximum (Fig. 9). With reduced concentration of K₂SO₄ the maximum is shifted toward the side of higher temperatures (65-75°C). With increased concentration it is shifted toward the side of lower temperatures and the

Card 2/4

87519

Effect of Anions and Temperature on the Rate of
Electrodeposition of Cadmium, Iron, Copper
and Zinc

S/073/60/006/002/004/011
B023/B067

curves become linear. These anomalies are observed only in dilute electrolytes. At different temperatures and at certain concentrations the specific conductivity of lead- and cadmium salts (Fig. 10) and the pH at which hydrates of cadmium, zinc, and nickel are formed (Fig. 11) deviate from the linear course of the dependence forming a break. With increased concentration of the electrolyte this break and the minimum and the maximum disappear (Fig. 12). The pH of water, the specific electrical conductivity, and the minimum of the differential capacity of the double layer mercury-solution show a break at 45-55°C. In the following, the authors study D. I. Mendeleyev's theory of the "characteristic" temperature (Ref. 21) and the same theory of A. P. Rutskov (Ref. 22). The authors hold the opinion that the anomalous dependence $\log i = f(1/T)$ is due to the change of the water properties which is intensified under the effect of anions. The highest rate of electrolysis was observed with the above maximum and the rate of the electrodic process is reduced. This is explained by the transformation of water into a state of "denser packing". The water dipoles can be adsorbed on the electrode surface. The distribution of the dipoles depends on the charge of the metal surface. With a positive charge of the

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Effect of Anions and Temperature on the Rate of Electrodeposition of Cadmium, Iron, Copper, and Zinc ⁸⁷⁵¹⁹ S/073/60/025/002/004, 011 B023/B067

metal surface the adsorbed molecules may form a dipole layer, whose negative surface is directed to the metal, its positive one to the solution. With negative charge of the metal surface the reverse case is observed. Finally, the following scientists are mentioned: S. V. Gorbachev, Ye. P. Starostenko, G. A. Yemelyanenko, and V. A. Karnitskiy. Ya. M. Kolotyркиn, L. A. Medvedeva (Ref. 15) and L. I. Antropov (Ref. 6). There are 12 figures and 31 references: 21 Soviet, 4 US, 1 British, 2 German, and 2 Italian.

ASSOCIATION: Chernovitskiy universitet, laboratoriya fizicheskoy khimii (Chernovtsy University, Laboratory of Physical Chemistry)

SUBMITTED: June 30, 1958

Card 4/4

S/073/60/026/002/005/015
B023/B067

AUTHORS: Pamfilov, A. V. and Kuzub, V. S.

TITLE: Effect of Temperature and Composition of the Solution on the Capacity of the Cadmium Electrode

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 2, pp. 182-187

TEXT: In continuation of earlier papers (Refs. 1 and 2) the authors studied the capacity of the cadmium electrode in a wide range of potentials at different temperatures and different concentrations of the electrolytes. The temperatures were 25-75°C, the concentrations of K_2SO_4 : 0.0012-1.0 N, of NaF 0.25-1.75 N, of KBr 0.005-2 N. The authors arrived at the following conclusions: With increased temperature the capacity of the electrode in concentrated solutions decreases, whereas, in dilute solutions it increases. An extremum, whose position depends on the charge of the surface and the anions was observed in the concentration range studied. For medium concentrations the capacity attains a maximum which, upon reduction of the

Card 1/3

Effect of Temperature on the Capacity of the
Solution on the Capacity of the Electrode
Electrode

S/073/6G/026/001/001/01
E073/E067

ASSOCIATION: Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Chernovtsy University, Laboratory of Physical Chemistry)

SUBMITTED: November 20, 1958

Card 3/3

YESAULOV, P.G., general-mayor; PAMFILOV, D.N., polkovnik

[Regulations governing garrison and guard duty of the Armed Forces of the U.S.S.R.; with amendments announced by decrees of the Minister of Defense, effective as of March 1, 1960]
Ustav garnizonnoi i karsul'noi sluzhb Vooruzhennykh Sil Soluza SSR. S izmeneniami i utochneniami, ob"iaslennymi prikazami Ministra oborony SSSR po sostoiianiu na 1 marta 1960 g. Moskva, Voen.izd-vo M-va obor. SSSR, 1960. 208 p. (MIRA 13:6)

1. Russia (1923)- U.S.S.R.) Ministerstvo oborony.
(Guard duty)

S/073/60/026/004/007/004
B016/B054

AUTHORS: Pamfilov, A. V. and Lopushanskaya, A. I.
TITLE: On the Mechanism of Electric Chromium Precipitation
PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 4,
pp. 461-465

TEXT: The authors investigated the part played by the cathode film forming during electric chromium precipitation by measuring the electrode capacity and using the method of tagged Cr^{51} atoms. The existence of the film can be determined on the basis of its influence on the capacity of the double layer. The Fig. (p.462) shows the dependence of the capacity on the potential of a platinum electrode. Curve 1 was obtained in a 1.0-mole solution of chromic anhydride, Curve 2 in chromic acid of the same concentration. Table 1 shows the dependence of the electrode capacity on the conditions of electrolysis. To clarify the part played by the film mentioned at the beginning, the authors made experiments with the use of tagged Cr^{51} atoms (half-life 26.5 days). Table 2 gives the activity of the chromium precipitate. On the basis of their results,

Card 1/2

87509

S/077/60,026/001/007.0
B004/B034

5.2400 2209,1043,1273

AUTHORS:

Pamfilov, A. V. Lopushanskaya, A. I. and Marichuk, A. M.

TITLE:

Polarography of Polyphosphate Complexes

PERIODICAL:

Ukrainskiy khimicheskiy zhurnal, 1960. Vol. 26, No. 1, pp. 41-47

TEXT: The authors report on the polarographic investigation of complexes of sodium tetrapolyphosphate with nickel, cobalt, zinc, cadmium, and lead. Preliminary experiments confirmed that the polarographic waves of the reduction of polyphosphate complexes are irreversible. Therefore, the theory of irreversible waves developed by various investigators (Ref. 1) was used to interpret the experimental data. For the ratio between the current i of the dropping mercury electrode and the pure diffusion current i_d , the relation $i/i_d = B\pi^{1/2}\lambda \exp(\lambda^2) \text{erfc}(\lambda)$ (4) is written. B is a coefficient. $\lambda = kt^{1/2}/D^{1/2}$ (5). D is the diffusion coefficient, erfc the error integral. λ was calculated from the graphically shown function $i/i_d = f(\lambda)$, and the velocity constant k from (5). The activation energy E_a was calculated from the Arrhenius equation $\ln k = \ln A - E_a/RT$. Card 1/3

Polarography of Polyphosphate Complexes

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B004/B004

and the product α_a were calculated from the equation $k_a = (KT/n) \exp \left[\frac{F}{RT} \left(\alpha_a - \frac{F\eta}{RT} \right) \right]$ where α_a is the transfer coefficient, n is the number of electrons in the activation, K is the Boltzmann constant, F is the mean potential between two ions in the solution, η is the overvoltage. Sodium tetrapolyphosphate was produced: a) by hydrolysis of sodium tetrahydrophosphate in alkaline medium, b) according to J. A. Campbell (Ref. 10), from NaPO_3 and $\text{Na}_2\text{P}_2\text{O}_7$ at a ratio of 2:1. Polarography was conducted by a PB-1 (PV-1) polarograph of the zavod Geologorazvedka ("Geologorazvedka" Plant). The semiwaves for Co^{2+} and Zn^{2+} on a KCl background, and for Ni^{2+} , Cd^{2+} , and Pb^{2+} on a KNO_3 background agreed with published data. An addition of tetrapolyphosphate first leads to a formation of white flakes which dissolve in excess tetrapolyphosphate. The polarographic waves are shifted toward more negative potentials. Complexes were studied for Zn^{2+} at pH 2-8 and for Cd^{2+} at pH 3.3-10 and for Pb^{2+} at pH 2.0-10 at different tetrapolyphosphate concentrations, and temperatures of 18-60°C. k_a , α_a , and α_a are independent of pH and temperature. In the case of Cd^{2+} and Pb^{2+} is about 1.5 times stronger at 60°C than at 17°C. While the formation

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Polarography of Polyphosphate Complexes

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B004/B054

$E = f(\log k)$ showed two steps between 17 and 60°C, with α_a of the second step being larger than α_a of the first step, only one step was observed at 62°C. The different course of the curve $E = f(\log k)$ for the individual metals is explained by the different stability of tetrapolyphosphate complexes, which is characterized by the difference between the ionization potential of the metal atom and the hydration heat of the resulting ion. It is 159 cal for Cd, 156 cal for Pb, 136 cal for Zn, 97 cal for Ni, and 93 cal for Co. In contrast to the irreversible course of reaction of tetrapolyphosphates, reversible waves were observed in an equimolar mixture of tripolyphosphate with metaphosphate. This proved that the tetrapolyphosphate is a compound, not a mixture. N. A. Rodionova and Yu. V. Khodakov are mentioned. There are 5 figures, 2 tables, and 1 reference. 5 Soviet, 5 US, 1 Czechoslovakian, and 1 German.

ASSOCIATION: Chernovitskiy universitet, laboratoriya fizicheskoy khimii
(Chernovtsy University, Laboratory of Physical Chemistry)

SUBMITTED: May 26, 1958

Card 3/3

S/C73/60/026/001/001/021
B004/B054

AUTHORS: Pamfilov, A. V., Lopushanskaya, A. I., and Gru, B. A.

TITLE:

Chrome Plating by Asymmetric Alternating Current

PERIODICAL:

Ukrainskiy khimicheskiy zhurnal, 1960, Vol 26, No 1, pp. 31-35

TEXT: The authors report on the effect of a change in the sense of current at different ratios between density and duration of anodic and anode current upon chrome plating. Brass cathodes (0.02 dm²) were chrome-plated in a bath of 250 g/l CrO₃ and 2.0 g/l H₂SO₄. Pt or Pt covered anodes. Electrolysis was conducted, for comparison, both with direct current and with alternating current generated by a mechanical current reverser; the amperage could be varied in the opposite direction by means of a rheostat. The authors determined the current yield in chromium, the microhardness by a PMT-3 (PMT-3) apparatus, as well as brightness and porosity of the chrome plating. The data for d.c. agreed with published data. The experiments with asymmetric a.c. were made at 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100 Hz.

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Chrome Plating by Asymmetric Alternating
Current

S/C73/60, 0.1, 0.01, 0.001, 0.0001
B004/B084

40, and 50°C. The density D_c of the cathode current was between 10 and 100 a/dm². The density D_a of the anode current was varied likewise, the ratio $t_c:t_a$ of the times during which the specimens were connected to the cathode (t_c) or anode (t_a). Table 1 gives the current yields at different $D_a:D_c$ and $t_c:t_a$ at 40°C. [Abstracted from: partial reproduction]

Current density, a/dm ² Direct current		$t_c:t_a$		
D_c	D_a	0:58:0 12 sec (7:1)	0:90:0 06 sec (15:1)	0:46:0 03 sec (32:1)
15	7.5	0	0	100
15	1.5	14.2	9.1	100
15	0.25	10.0	9.1	100
25	12.5	0	0	100
25	5.0	0	0	100
25	1.25	12.2	12.2	100
35	17.5	0	17.5	100

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Chrome Plating by Asymmetric Alternating
Current

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B004/B054

D_c	D_a		0.88:0.12 sec (7:1)	0.30:0.06 sec (15:1)	0.66:0.03 sec (33:1)
35	7.0	17.6	13.1	23.5	28.4
35	1.75	17.6	28.8	26.7	21.0
50	25	20.0	0	13.4	22.5
50	5	20.0	15.6	18.3	23.1
50	0.85	20.0	17.8	19.2	21.9
75	37.5	24.7	3.4	21.2	26.7
75	7.5	24.7	27.3	33.2	33.8
75	1.25	24.7	35.3	31.8	28.7
100	50	28.0	4.3	20.8	28.7
100	10	28.0	23.7	30.2	33.4
100	1.6	28.0	31.1	26.9	28.1

Hence, it follows that the current yield can be increased by varying $D_a:D_c$ and $t_c:t_a$. Microhardness behaves similarly. At constant $t_c:t_a$, there are certain $D_a:D_c$ at which the microhardness of chrome plating is higher than with d.c. Appearance and brilliance of a.c. chrome plating were

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Chrome Plating by Asymmetric Alternating
Current

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better than with d.c., especially at high current densities. At lower temperatures (3 and 15°C), the a.c. yield was lower than the d.c. yield. A superposition of sinusoidal a.c. over d.c. had no effect at more than 500 cycles per second. At frequencies between 15 and 160 cycles and a certain ratio between d.c. and a.c., an improvement in quality and a slight increase in current yield were obtained. L. Ya. Bogorai, A. P. Popkov, and A. T. Vagramyan are mentioned. There are 2 figures, 3 tables and 8 Soviet references: 1 US, 2 German, and 1 Rumanian.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet, laboratoriya fizicheskoy khimii (Chernovtsy State University, Laboratory of Physical Chemistry)

SUBMITTED: June 26, 1958

Card 4/4

PAMFILOV, A.V.; LOPUSHANSKAYA, A.I.; GRU, B.A.

Chromium plating with asymmetrical alternating current. Ukr.khim.
zhur. 26 no.1:31-35 '60. (MIRA 13:5)

1. Chernovitskiy gosudarstvennyy universitet, laboratoriya
fizicheskoy khimii.
(Chromium plating)

PAMFILOV, A.V.; KUZUB, V.S.; PALAMARCHUK, I.V.

Joint action of surface active substances on the electrocapillary curve. Dop. AN URSR no.6:813-816 '60. (MIRA 13:7)

1. Chernovetskiy gosudarstvennyy universitet. Predstavleno akademikom AN USSR Yu.K.Delimarskim [IU.K.Delimars'kym].
(Surface active agents) (Surface tension)

LOPUSHANSKAYA, A. I., PAMFILOV, A. V.

Kinetics of reduction of chromic acid. Ukr. khim. zhur. 26 no. 3:
314-318 '60. (MIRA 13:7)

1. Chernovitskiy gosudarstvennyy universitet, Laboratoriya
fizicheskoy khimii.
(Chromic acid) (Reduction, Electrolytic)

PAMFILOV, A.V.; KUZUB, V.S.; TOVMACH, L.P.

Lustrous cadmium plating in acid baths. Zhur.prikl.khim.
33 no.7:1669-1671 J1 '60. (MIRA 13:7)

1. Laboratoriya fizicheskoy khimii Chernovitskogo universiteta.
(Cadmium plating)

LOPUSHANSKAYA, A.I.; PAMFILOV, A.V.

Irreversible polarographic waves. Usp.khim.30 no.3:386-409
Mn '61. (MIRA 14:3)

1. Chernovitskiy gosudarstvennyy universitet.
(Polarography)

PAMFILOV, A.V.; LOPUSHANSKAYA, A.I.; IVCHER, T.S.

Irreversible polarographic waves of cadmium and lead hexaphosphates. Ukr.khim.zhur. 27 no.5:598-603 '61. (MIRA 14:9)

1. Chernovitskiy gosudarstvennyy universitet.
(Lead phosphate) (Cadmium phosphate)
(Polarography)

PAMFILOV, A.V.; KUZUB, V.S.

Organic addition agents and halogens in cathodic processes.
Ukr.khim.zhur. 27 no.3:311-314 '61. (MIRA 14:11)

1. Chernovitskiy gosudarstvennyy universitet, laboratoriya
fizicheskoy khimii.
(Electrochemistry)

S/080/62/035/004/019/022
D205/D301

AUTHORS: Pamfilov, A. V. and Mel'nik, P. M.

TITLE: Internal stresses in electrolytic cadmium sediments

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 4, 1962, 911-913

TEXT: This work reports the results of stress measurements in cadmium sediments from acidic baths. The internal stresses were measured by the elastic cathode method and computed by the modified Stoney's method. The cathode potential was measured by a cathodic voltmeter using a reference calomel electrode. The pH of the electrolyte was measured potentiometrically. Thickness of the sediment was of the order of 10μ . The bath was thermostatically maintained at 15, 30 and 45°C and its composition was (in g/l): $\text{CdO}-19$, KHSO_4-45 , $(\text{NH}_4)_2\text{SO}_4-10$. The sediments consisted of bright, large crystals. It is shown that an increase of bath temperature decreases stresses in the sediments; with the increase of the current density the stresses pass through a maximum at all temperatures. The sediments

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Internal stresses in ...

S/080/62/035/004/013/022
D205/D301

which show the highest stresses are the most dense and homogeneous. With the addition to the bath of 'chloramine B' (2 g/l) or of disulphonaphthoic acid (1 g/l) the sediments become lighter and less lustrous and the crystals become smaller. The internal stresses are not changed by these additions. In the presence of 1 g/l of gelatine and 11 g/l of caramel sugar the addition of sodium 3-naphthalene sulphonate and of 2,6 - 2,7 disulphonaphthoic acid increases the internal stresses while the addition of 'chloramine B' has an opposite effect. The best luster is achieved at noticeable hydrogen evolutions. While increasing pH in the usual bath lowers the internal stresses, in the case of a composite bath the stresses achieve a maximum at pH corresponding to the isoelectric point of gelatine. As the internal stresses are compression stresses an increase in the volume of the sediment obviously takes place during the electrolysis. This is probably caused by the occlusion of hydrogen. The total gas content of the sediments as determined by vacuum removal, is of the order of 20 ml/100 g of metal. There are 4 figures, 1 table and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as

Card 2/3

3/080/62/035/004/013, 022
D205/D301

Internal stresses in ...

follows: R. H. Barclie and B. H. Davies, The Eng., 150, 679, 1850;
G. G. Stoney, Proc. Roy. Soc., 82, 172, (1909); E. Y. Mills, Proc.
Roy. Soc., 26, 504, (1877).

ASSOCIATION: Kafedra fizicheskoy khimii Chernovitskogo universi-
teta (Department of Physical Chemistry of the Univer-
sity of Chernovits)

Card 3/3

S/073/62/028/005/003/005
I003/I203

AUTHORS: Famfilov, A.V., Mushiy, R.Ya., and Mazurkevich Ya.S.

TITLE: The photocatalytic activity of anatase and of rutile

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, v. 28, no 5, 1962, 589-594

TEXT: There are indications in the literature that the crystal structure of titanium dioxide is the factor which determines its activity as an accelerator in the process of decomposition of organic coatings. It was found that the photoelectric activity of rutile prepared by the hydrolysis of titanium tetrachloride is considerably higher than that of rutile obtained by heating anatase at high temperatures. The activity of rutile obtained by the hydrolysis of $TiCl_4$ is almost the same as that of anatase obtained by precipitation with ammonia from a solution of $TiCl_4$. Very small admixtures of heavy metals increase the activity of TiO_2 but large amounts (above 0.1%) decrease it. There is a strict relationship between the photocatalytic activity of TiO_2 and ZnO and their electric and photoelectric properties. There are 2 figures and 4 tables.

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The photocatalytic...

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